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07/702,615 APPLICATION NO.	05/17/91 FILING DATE	BAINES FIRST NAMED INVENTOR	R	ATTORNEY DOCKET NO. 09131859-1
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EXAMINER  
TAMAI, K

ART UNIT 2534	PAPER NUMBER
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UNITED STATES DEPARTMENT OF COMMERCE  
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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Paper No. 59

Application Number: 07/702,615  
Filing Date: 5/17/1991  
Appellant: Baines

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James A. Finder  
For Appellant

**EXAMINER'S ANSWER**

Art Unit:

This is in response to appellant's brief on appeal filed September 11, 2000.

**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is correct.

**(4) *Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) *Summary of Invention***

The summary of invention contained in the brief is correct, but does not refer to the specification by page number and line number.

**(6) *Issues***

The appellant's statement of the issues in the brief is correct.

Art Unit:

**(7) *Grouping of Claims***

Appellant's brief includes a statement that claims 48, 51-58, 60-67, 72, and 75-79 stand and fall together; and claim 93 stands or falls by itself as set forth in 37 CFR 1.192(c)(7) and (c)(8).

**(8) *Claims Appealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) *Prior Art of Record***

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

<u>PATENT No.</u>	<u>INVENTOR</u>	<u>ISSUE DATE</u>
US 4,705,978	Mabuchi	11/1987
JP 62-293,953	Takashita('953)	12/1987
JP 59-230,450	Kojima('450)	12/1984
JP 59-030,672	Kato('672)	2/1984

**(10) *Grounds of Rejection***

The following grounds of rejection are applicable to the appealed claims:

Claims 48, 51-58, 60-67, 72, 75-79, and 93 are rejected under 35 U.S.C. 103(a). This rejection is set forth in prior Office action, Paper No. 52, and repeated below for convenience.

Claims 48, 51-58, 60-67, 72, and 75-79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mabuchi, '450, and '953. Mabuchi teaches a motor having two sets of

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diametrically opposed brush assemblies, where each brush assemblies contains two brushes 1 contacting the same segment 4 of cylindrical commutator. Each brush having a brush body 1 and a support arm 2. Mabuchi does not teach each support arm being a different resonant frequency due to different materials in the brush arm or a slot in one of the brush arms or brush bodies mounted by interference fit into apertures on the support arm. '450 teaches that brush arms with different weights due to different dimension of the adjacent brush arms varies the intrinsic vibrating frequency of each arm to reduce noise and unequal rotation in the motor. It is inherent that the different brush arms cause a reliable brush contact with the commutator. '450 does not teach different materials in the brush arms. '953 teaches the equivalency of different size brushes, brushes of different materials, and a slit in one of the brushes to change the resonant frequency between two brush arms. '953 teaches brushes 6 mounted by interference fit into apertures 7 on the support arms. It would have been obvious to a person skilled in the art at the time of the invention to construct the motor of Mabuchi with the brush arms having different resonant frequency due to the use different materials in the brush arms or a slot in one of the arms because '450 teaches that different resonant frequencies in adjacent brushes reduces noise and unequal rotation in a motor and because '953 teaches the equivalence of changing the resonance frequency in two brush arms by different size brush arms, different materials in the brush arms, and a slot in one of the brush arms, where selection of know equivalents is within the ordinary skill in the art..

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Claim 93 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 59-30,672 ('672) and Mabuchi. '672 teaches a brush assembly with first and second support arms 7a, 7b, where each arm has a brush body 10,11 which contact the same commutator 8 segment. The brush bodies being of different materials, inherently have different resonance frequencies. '672 suggests but does not teach the brushes connected electrically in parallel. Mabuchi teaches the brush of '672 (figure 2) being electrically connected in parallel. It would have been obvious to a person skilled in the art at the time of the invention to construct the brush assembly of '672 with the brushes electrically connected in parallel to provide electrical current to the commutator, as taught by Mabuchi.

***(11) Response to Argument***

The Applicant's argument that Mabuchi does not have a brush body is not persuasive. The Applicant is reading the limitation of carbon brushes from the specification into the claim limitation of brush body. The brush shoes 1 of Mabuchi read on the brush bodies according to the limitations of the claims, that being: they are in combination with the brush arms and are arranged to be in contact with the cylindrical commutator (see claim 48, 52, and 58, lines 7 and 8; claims 72 and 77, lines 3 and 4). The Applicant's argument that finger leaf brushes are a different class from the carbon leaf brushes is not persuasive. Particularly, Japanese reference 59-30672 shows that finger leaf brushes (figure 2) and leaf brushes with additional contacts (figure 3) are within the same class of electrical contact for a motor/generator. The only

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difference being that carbon leaf brushes include an additional brush contact material to improve the electrical contact. The Applicant's arguments regarding the differences between finger leaf brushes and carbon leaf brushes is not persuasive. The Applicant has not limited his invention to carbon brushes. The Applicant's argument that parallel carbon leaf brushes are not known in the prior art is not persuasive. Campbell(US 3,041,118) teaches parallel leaf springs having carbon contacts buttons 24. Campbell was not relied upon as a reference, because the carbon brushes are not claimed. The Applicant's arguments with regard to Claim 93 are not persuasive for the same reasons discussed above.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



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KIT

September 26, 2000

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